REMARKS

Claims 1-6, 9, 10 and 13-26 are now in the application. The recent telephone interview so courteously granted the undersigned by Examiner Valdez and Primary Examiner Sergent is hereby noted with appreciation. As a result of the interview and the remarks presented in our prior response, the Examiner agreed that the rejections of the claims would be revisited upon the filing of this Supplemental Response.

Claims 1-6, 9, 10, 15, 16, 23 and 24 stand rejected under 35 U.S.C. 102(b) as being anticipated by International Publication No. WO 02/096823 to Yamashita et al. (hereinafter also referred to as "Yamashita")[1]. Yamashita does not anticipate claims 1-6, 9, 10, 16, 23 and 24.

Claim 1 relates to a cement admixture (i.e. an admixture for cement) that comprises two or more species of copolymers. The polycarboxylic acid copolymer having a polyalkylene glycol side chain recited in Claim 1 is constituted of two or more species of copolymers with different acid values. At least one of the two or more species of copolymers with different acid values has an oxyalkylene group containing 3 or more carbon atoms. As discussed during the interview, the claim recitation "oxyalkylene group with 3 or more carbon atoms" means a group having an oxygen with 3 or more consecutive carbon atoms as disclosed in the specification such as at page 13, lines 12-14 of the specification.

Further, the proportion of the copolymer having a polyalkylene glycol side chain containing an oxyalkylene group having 3 or more carbon atoms (hereinafter, also referred to as C3 copolymer) is determined to be 70% by weight or larger, relative to 100% by weight of the total amount of the two or more species of copolymers.

Yamashita does not anticipate claim 1 since, among other things, Yamashita fails to include any description about the proportion of the C3 copolymers to the two or more species of copolymers. The discussion in Yamashita pointed out in the office action (page 15, lines 8-11 of

[1] The assignee of Yamashita and this application is the same, Nippon Shokubai Co. Ltd ,with Hiromichi Tanaka being a co inventor in both.

Yamashita) refers to a preferable range of the total amount of plural species of constituent units (constituent units (I) and (II)) contained in one species of copolymer. This is clearly different from the preferable range of the proportion of C3 copolymers mentioned above. In other words, the claimed proportion of C3 copolymers is concerned with its amount relative in the polymer total amount of different copolymers; whereas Yamashita disclosure is concerned with monomeric amounts in a particular copolymer.

As shown below, Yamashita does not specifically disclose a cement admixture containing C3 copolymers satisfying the proportion mentioned above as recited in claim 1.

As discussed during the interview, among the copolymers specifically disclosed in Yamashita, only the copolymer C-8 obtained in Production Ex. 32 shown in Table 7 corresponds to the C3 copolymer. In Examples 28, 32, 36, and 40 in which copolymers C-8 are used, the proportions of the copolymers C-8 to the entire copolymers are respectively 48.3%, 47.1%, 48.5%, and 34.5%. These proportions are all significantly lower than 70% and do not satisfy the range of 70% or more defined in Claim 1 of the present application. Also as discussed during the interview and agreed to by Examiner, since C8 is the only copolymer disclosed in Yamashita having a polyalkylene side chain containing an oxyalkylene group containing 3 or more carbon atoms, there is no need to provide calculations concerning the ratio of acid value for other copolymers in Yamashita.

The following discussion sets forth how to determine proportions of copolymers C-8 in the above Examples of Yamashita.

The copolymer C-8 is constituted of three species of constituent units including IPN-50EO3PO having a polyalkylene glycol side chain containing an oxyalkylene group having 3 or more carbon atoms, an acrylic acid (AA), and 2-hydroxyethyl acrylate (HEA). The IPN-50EO3PO is obtained by adding 50 moles of ethylene oxide (EO) to 3-methyl-3-butene-1-ol and further adding 3 moles of propylene oxide (PO) thereto for introducing an oxyalkylene group having 3 or more carbon atoms therein.

Next, only Examples 28, 32, 36, and 40 in Table 9 correspond to Examples of cement admixtures using C-8 corresponding to the C3 copolymer (please see arrowed Examples in the

attachment showing Table 9). In each of these examples, the proportion of C-8 as the C3 copolymer to the entire copolymers contained in the cement admixture is important.

Any of the cement admixtures of Examples in Table 9 is constituted of two or more species of copolymers and the copolymers are listed in boxes of "Formulation". Here, the format in Tables 2 to 5 allows one to see the left-hand copolymer to be a copolymer (A) and the right-hand copolymer to be a copolymer (B), out of the copolymers in the box of "Formulation" in Table 9. Then, the C-8 as the C3 copolymer is a copolymer (A) and the proportion (% by weight) thereof relative to the total amount of copolymers is the value in the box of "Polymer (A)" of the item "Combination ratio of polymer" in Table 9.

Accordingly, the proportions of the copolymers C-8 in Examples 28, 32, 36, and 40 are 48.3%, 47.1%, 48.5%, and 34.5%, respectively as mentioned above.

Regarding Claim 3, such recites that the ratio of the acid value of the two or more species of copolymers is 3 or less.

As disclosed in the present specification (lines 27 to 32 in page 7), the ratio of the acid value is obtained by dividing the largest acid value by the smallest acid value among the acid values of the copolymers. Here, as disclosed in the present application (lines 16 to 34 in page 8), "the acid value" in the present application is defined as "a ratio (%) of a monomer having an acid group and/or a sodium salt form of the acid group completely neutralized by sodium hydroxide in a monomer component". For example, when the copolymer is obtained by polymerizing a monomer component, representing a mixing weight of a monomer having an acid group in the monomer component as "a", and representing a mixing weight of a monomer not having an acid group as "b", an acid value "A" can be obtained by the following equation:

$$\text{Acid value "A"} = 100 \times a / (a+b)$$

In contrast, Yamashita does not disclose the acid value and the ratio of the acid value. The disclosure of Yamashita pointed out by the examiner (lines 12 to 30 in page 15 of Yamashita) in the present Office Action is "milliequivalents of carboxyl groups" per gram of one species of copolymers and its preferable range being 0.4 to 3.0 meq/g.

As pointed out in the response to the previous Office Action, "the acid value" and "the ratio of the acid value" are conceptually totally different from "milliequivalents of carboxyl groups". Therefore, "milliequivalents of carboxyl groups" being 3 or less does not provide a basis for "the ratio of the acid value" being 3 or less. Accordingly, what is pointed out by the examiner is obviously incorrect.

As shown below, a cement admixture satisfying the above ratio of the acid value is not specifically disclosed in Yamashita.

The ratios of the acid value of two species of copolymers in Examples 28, 32, 36, and 40 in which the copolymers C-8 are used are respectively calculated to be 4.59, 5.29, 7.24, and 3.62. Accordingly, Yamashita does not disclose 3 or less as the ratio of the acid value defined in Claim 3 of the present application.

The following discussion sets forth how to determine the ratio of the acid value in the above Examples of Yamashita.

In the calculation of the ratio of the acid value, it is to be noted that the acid value in the present application refers to a ratio (%) of a monomer having an acid group and/or a sodium salt form of the acid group completely neutralized by sodium hydroxide in a monomer component.

Prior to the calculation of the acid values of 5 species of copolymers used in Examples 28, 32, 36, and 40 of Yamashita, the ratios of the acrylic acid (AA) and the maleic acid (MA) contained in the copolymers should be converted to the ratios of their sodium salts.

More specifically, based on Tables 1 and 8, the acrylic acid (AA: molecular mass of 72) is replaced by sodium acrylate (SA: molecular mass of 94) with regard to C-8, A-9, A-11, and D-3, and the maleic acid (MA: molecular mass of 116) is replaced by sodium maleate (SMA: molecular mass of 160) with regard to E-2. Fig. 1 shows the conversion results of the ratios of respective monomer components.

C-8

Original	IPN-50EO3PO	AA	HEA	total
	88.7	2.6	8.7	100.0
After conversion	IPN-50EO3PO	SA	HEA	total
	88.0	3.4	8.6	100.0

A-9

Original	IPN-50	AA	HEA	total
	87.6	12.4	0.0	100.0
After conversion	IPN-50	SA	HEA	total
	84.4	15.6	0.0	100.0

A-11

Original	AL-75	AA	HEA	total
	85.6	14.4	0.0	100.0
After conversion	AL-75	SA	HEA	total
	82.0	18.0	0.0	100.0

D-3

Original	AL-75	AA	HEA	total
	80.0	20.0	0.0	100.0
After conversion	AL-75	SA	HEA	total
	75.4	24.6	0.0	100.0

E-2

Original	IPN-50	MA	HEA	total
	90.8	9.2	0.0	100.0
After conversion	IPN-50	SMA	HEA	total
	87.7	12.3	0.0	100.0

(Fig. 1)

Based on the acid values obtained from the above conversion results, the ratios of the acid values of two species of copolymers in Examples 28, 32, 36, and 40 of Yamashita are calculated. Fig. 2 shows the obtained values.

	C3 copolymer	other copolymers	ratio of acid values
Ex.28	C-8	A-9	15.6/3.4=4.59
Ex.32	C-8	A-11	18.0/3.4=5.29
Ex.36	C-8	D-3	24.6/3.4=7.24
Ex.40	C-8	E-2	12.3/3.4=3.62

(Fig. 2)

Yamashita fails to anticipate the present invention since anticipation requires the disclosure, in a prior art reference, of each and every recitation as set forth in the claims. *See Titanium Metals Corp. v. Banner*, 227 USPQ 773 (Fed. Cir. 1985), *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 1 USPQ2d 1081 (Fed. Cir. 1986), and *Akzo N.V. v. U.S. International Trade Commissioner*, 1 USPQ2d 1241 (Fed. Cir. 1986).

There must be no difference between the claimed invention and reference disclosure for an anticipation rejection under 35 U.S.C. 102. *See Scripps Clinic and Research Foundation v. Genetech, Inc.*, 18 USPQ2d 1001 (CAFC 1991) and *Studiengesellschaft Kohle GmbH v. Dart Industries*, 220 USPQ 841 (CAFC 1984). In order to anticipate a claim, a prior art reference must not only disclose all elements or limitations of a claim within its four corners but must also disclose those elements arranged as recited in the claim. The cited art must clearly and unequivocally disclose the claimed invention without any need for picking and choosing and combining various disclosures from the reference. Please see *Net MoneyIn v. VeriSign, Inc. et al.* 545 F.3d 1359 1371, 88 USPQ2d 1751 (Fed. Cir. 2008).

In addition, as stated in *Ex parte Levy*, 17 USPQ2d 1461 (USPTO Board of Patent Appeals and Interferences, 1990) "it is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied references." This has not been done in the present case as discussed above.

Claims 13 and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over

Yamashita in view of International Publication No. WO 2004/099100 to Nishikawa[2]. The cited references do not render unpatentable claims 13 and 14. Nishikawa does not overcome the above discussed deficiencies of Yamashita with respect to rendering unpatentable the present invention. Accordingly, claims 13 and 14 are patentable for at least those reasons as to why claim 1 is patentable.

Claims 17-22, 25 and 26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2003/0199616 to Yamashita et al. in view of U.S. Patent Publication No. 2004/0107876 to Tomita[3]. The cited references do not render unpatentable claims 17-22, 25 and 26. Tomita does not overcome the above discussed deficiencies of Yamashita with respect to rendering unpatentable the present invention. Accordingly, claims 17-22, 25 and 26 are patentable for at least those reasons as to why claim 1 is patentable.

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

[2] The assignee of Nishikawa and this application is the same, Nippon Shokubai Co. Ltd. with Tomiyasu Ueta and Hiromichi Tanaka being co inventors in both.
[3] The assignee of Tomita and this application is the same, Nippon Shokubai Co. Ltd.

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185, under Order No. 21581-00361-US1 from which the undersigned is authorized to draw.

Dated: 6-23-2011
BAA

Respectfully submitted,

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[Table 9]

	Formulation of reactor	W/O (%)	Formulation	Addition level of solid matter component (mass%) /cement		Addition level of polymer (net amount) (% by mass)		Total addition level of polymer (net amount) (mass%) /cement	Total addition level of AD mixture (relative to polymer S by mass)	Total addition level of polyethylene glycol (relative to polymer S by mass)	Condensation ratio of polymer (%)		Flow value (mm)				
				Polymer (A) solid matter component	Polymer (B) (solid matter component)	Polymer (A) (net amount)	Polymer (B) (net amount)				Polymer (A)	Polymer (B)	after 5 min	after 30 min	after 60 min	after 90 min	after 120 min
Example 22	Formulation B	25.6	A-4+A-5	0.20	0.12	0.191	0.109	0.299	2.89	4.11	63.9	38.1	152	147	134	118	110
Example 23	Formulation B	25.6	A-6+A-7	0.23	0.15	0.207	0.15	0.315	13.45	7.07	65.8	38.4	153	148	142	128	120
Example 24	Formulation B	25.6	A-5+A-8	0.12	0.24	0.109	0.164	0.291	16.69	6.82	37.0	63.0	148	144	134	115	108
Example 25	Formulation B	29.6	A-9+A-10	0.13	0.24	0.116	0.169	0.309	12.95	6.47	37.7	62.3	146	138	118	108	100
Example 26	Formulation B	25.6	C-6+A-9	0.20	0.16	0.164	0.181	0.326	10.16	6.52	50.3	49.5	141	140	115	105	98
Example 27	Formulation B	25.6	C-7+A-9	0.18	0.15	0.132	0.134	0.266	6.62	6.12	49.5	50.3	148	147	135	116	110
Example 28	Formulation B	25.6	C-8+A-8	0.22	0.16	0.151	0.161	0.312	20.77	7.47	49.3	51.7	138	137	132	112	102
Example 29	Formulation B	25.6	C-3+A-8	0.08	0.20	0.054	0.179	0.233	5.89	5.71	29.1	76.8	143	138	126	109	100
Example 30	Formulation B	25.6	C-4+A-11	0.20	0.28	0.164	0.185	0.349	32.06	5.50	47.1	52.8	138	139	127	112	107
Example 31	Formulation B	25.6	C-7+A-11	0.15	0.25	0.132	0.165	0.297	29.85	5.06	46.0	54.0	145	132	148	140	140
Example 32	Formulation B	25.6	C-8+A-11	0.22	0.28	0.151	0.185	0.336	42.83	6.33	47.1	52.9	135	156	148	134	134
Example 33	Formulation B	25.6	C-3+A-11	0.08	0.30	0.072	0.198	0.268	38.76	4.29	26.8	73.4	140	156	152	144	144
Example 34	Formulation B	25.6	C-6+D-3	0.20	0.16	0.164	0.160	0.324	7.42	3.55	50.7	49.3	152	156	139	130	130
Example 35	Formulation B	25.6	C-7+D-3	0.15	0.14	0.132	0.140	0.272	3.73	3.01	49.5	51.5	157	158	153	154	154
Example 36	Formulation B	25.6	C-8+D-3	0.22	0.16	0.151	0.160	0.311	17.86	4.37	49.5	51.5	148	152	158	145	145
Example 37	Formulation B	25.6	C-3+D-3	0.08	0.16	0.054	0.190	0.244	1.60	1.67	23.0	77.0	170	161	160	155	155
Example 38	Formulation B	25.6	C-6+E-2	0.15	0.23	0.123	0.193	0.316	12.65	6.76	28.6	61.2	138	137	153	149	149
Example 39	Formulation B	25.6	C-7+E-2	0.13	0.20	0.114	0.169	0.283	9.90	6.48	40.2	59.8	142	155	152	150	150
Example 40	Formulation B	25.6	C-8+E-2	0.15	0.23	0.109	0.195	0.289	20.24	7.46	24.5	65.5	135	155	150	148	148
Example 41	Formulation B	25.6	C-3+E-2	0.04	0.24	0.038	0.203	0.229	10.73	6.34	13.01	85.0	140	156	153	152	152

polymer (A)